IWAKI

Magnetic drive pumps

MD-F/V

Main material
MD-F: **CFRETFE**
MD-V: **CFRPVDF**

Compliant with highly corrosive/viscous liquids
High-end compact magnetic drive pumps

The Heart of Industry

Compliant with highly corrosive/viscous liquids
High-end compact magnetic drive pumps

Most chemicals can be handled including strong acid/alkaline.

High corrosion-resistance

The combination of the MD-F series with CFRETFE wet ends and the MD-V series with CFRPVDF wet ends covers most chemicals including strong acid/alkaline.

Viscosity responsiveness

The MD-F series is designed to pump highly viscous liquids such as strong acid. Three types of impellers are selectable according to liquid viscosity.

MD-F series

MD-15F

MD-30F

MD-15F·30F C F R ETFE 50/60Hz

- Max Discharge capacity **9/10 - 13/15** L/min
- Max Discharge head **3/3.1 - 8/11** m

MD-55F

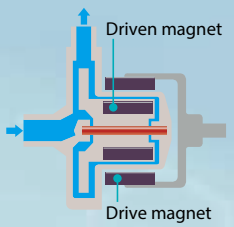
MD-100F

MD-55F·100F C F R ETFE 50/60Hz

- Max Discharge capacity **60/55 - 125/135** L/min
- Max Discharge head **5.4/6.0 - 10.5/11.5** m

Operating Principle

The centrifugal pump is driven by a pair of magnets which are incorporated in the impeller and motor shaft. The sealless pump structure eliminates shaft seals such as conventional mechanical seals because the pump chamber is shielded by the casings and the impeller is operated by the magnets. The combined coupling torque of the drive magnet and impeller magnet gives sufficient driving power against the motor torque.



Leak free

Magnetically-driven seal-less pumps are free from leak problems and the need of seal replacement. This feature and its compact nature offer the best fit in built-in applications.

Ease of maintenance

The pump unit is comprised of a small number of subunits, so that maintenance is significantly eased.

MD-V series


MD-6KV


MD-15RV


MD-20RV


MD-30RV


MD-70RV

MD-6KV C F R PVDF 50/60Hz

- Max Discharge capacity **8.0/9.0** L/min
- Max Discharge head **1.0/1.4** m

MD-15V·20V·30V C F R PVDF 50/60Hz

- Max Discharge capacity **10/11- 32/38** L/min
- Max Discharge head **2.4/3.4 - 8.0/11** m

MD-70V C F R PVDF 50/60Hz

- Max Discharge capacity **40/43 - 86/97** L/min
- Max Discharge head **6.7/9.7 - 14.3/20.3** m

Extensive product range according to chemical liquids

High S.G. /High-head types are available.

Outline of the series

Main Material	Models		Max. discharge capacity (L/min) (20 40 60 80 100 120 140)	Max. discharge head (m) (5 10 15 20)	Limit of specific gravity
CFRETFE	MD-15FX Low S. G. type	50Hz	10	4.1	1.4 Note
	MD-15FY Middle S. G. type	50Hz	9	3	2.2 Note
		60Hz	10	4	1.4 Note
	MD-15FZ High S. G. type	60Hz	10	3.1	2.1 Note
	MD-30FX Low S. G. type	50Hz	13	8	1.7 Note
		60Hz	15	11	1.5 Note
	MD-30FY Middle S. G. type	50Hz	10	6	2.2 Note
		60Hz	12	8	1.7 Note
	MD-30FZ High S. G. type	60Hz	11	7	2.1 Note
	MD-55FX Low S. G. type	50Hz	65	7.8	1.5 Note
	MD-55FY Middle S. G. type	50Hz	60	5.4	2.2 Note
		60Hz	65	7.8	1.5 Note
	MD-55FZ High S. G. type	60Hz	55	6.0	2.2 Note
	MD-100FX Low S. G. type	50Hz	125	10.5	1.6 Note
	MD-100FY Middle S. G. type	50Hz	115	8.5	2.3 Note
		60Hz	135	11.5	2.2 Note
	MD-100FZ High S. G. type	60Hz	115	8.5	2.2 Note
CFRPVDF	MD-6KV Standard type	50Hz	8.0	1.0	1.2
		60Hz	9.0	1.4	1.2
	MD-15RV Standard type	50Hz	16	2.4	1.3
		60Hz	19	3.4	1.3
	MD-20RZV High head type	50Hz	10	4.9	1.1
		60Hz	11	6.9	1.1
	MD-30RV Standard type	50Hz	32	3.8	1.3
		60Hz	38	5.4	1.3
	MD-30RZV High head type	50Hz	15	8.0	1.1
		60Hz	17	11	1.1
	MD-70RV Standard type	50Hz	86	6.7	1.0
		60Hz	97	9.7	1.0
	MD-70RZV High head type	50Hz	40	14.3	1.0
		60Hz	43	20.3	1.0

Note: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)

Construction

Motor

Drive magnet

The 6- or 8-pole high power ferrite magnet drives the impeller over the rear casing.

O ring

Rear casing

CFRETFE single-piece rear casing of the MD-F and CFRP-VDF single-piece rear casing of the MD-V. The bearing is placed at the bottom, supporting the spindle.

Spindle

Front casing

MD-F CFRETFE injection mold of the safety thread connection type

MD-V CFRPVDF hose connection is available as well as thread connection. Also union joints can be installed for the thread connection types.

Note: For the 6KV-N and 15RV-N, the thread connection type is not available.

Hose connection type

Thread connection type

Impeller

MD-F CFRETFE single-piece closed impeller. Three impeller types (X • Y • Z) are available according to specific gravity.

X: Low S.G. impeller

Y: Middle S.G. impeller

Z: High S.G. impeller (60Hz only)

MD-V For the MD-V, the ferrite magnet is encapsulated into the CFRPVDF impeller. For the rotating spindle type, an alumina ceramic spindle is integrally molded with the impeller.

Note: The MD-6KV-N is a fixed spindle type.

MD-15F·30F

C F R
ETFE
50/60 Hz

- Max Discharge capacity **9/10 - 13/15** L/min
- Max Discharge head **3/3.1 - 8/11** m

MD-15F

MD-30F

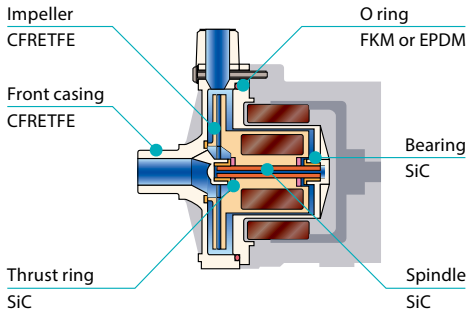
Specifications (50/60Hz)

Model	Type of Impeller	Thread connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G.Note1	Output (W)	InputNote2 (W)	Power source	Mass (kg)
MD-15F	X	NPT1/2	10/-	4.1/-	1.4/-	10/-	38/-	100V/200V/ 220V - 240V Single phase	1.8
	Y		9/10	3/4	2.2/1.4	10/10	30/34		
	Z		-/10	-/3.1	-/2.1	-/10	-/31		
MD-30F	X	NPT1/2 or G3/4	13/15	8/11	1.7/1.5	45/45	70/90		3.5
	Y		10/12	6/8	2.2/1.7	45/45	70/90		
	Z		-/11	-/7	-/2.1	-/45	-/55		

• Temperature range: 0 - 80˚C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0 - 40˚C
• Motor type: Capacitor-run induction motor
Note1: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)
Note2: The above values are for single-phase 100V.

Construction and materials

Illustlation shows model MD-30F



- **CFRETFE** Carbon fiber-reinforced ETFE
- **SiC** Silicon carbide ceramic
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - 30F G Z - 200 E N
1 2 3 4 5

1 Pump size
15F, **30F**

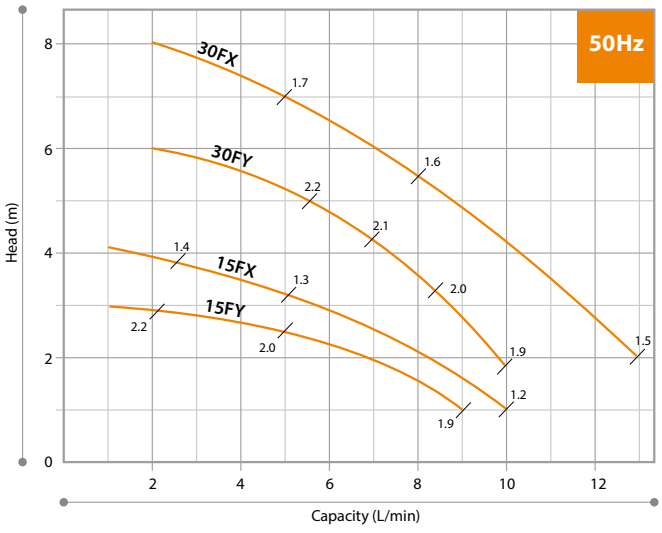
2 Connection
No mark : NPT thread connection
G : G thread connection

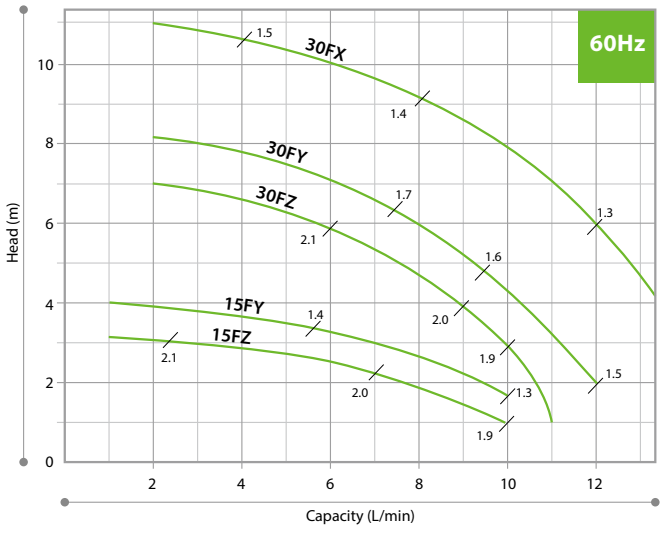
3 Impeller
X : Low S.G. type
Y : Middle S.G. type
Z : High S.G. type (60Hz)

4 Motor
No mark : 100V single (Standard)
200 : 200V single (Special order)
220 : 220/240V single

5 Material of O ring
No mark : FKM (Standard)
E : EPDM (Special order)

Performance curves





MD-55F·100F

C F R
ETFE
50/60 Hz

- Max Discharge capacity **60/55 - 125/135** L/min
- Max Discharge head **5.4/6.0 - 10.5/11.5** m

MD-55F

MD-100F

Specifications (50/60Hz)

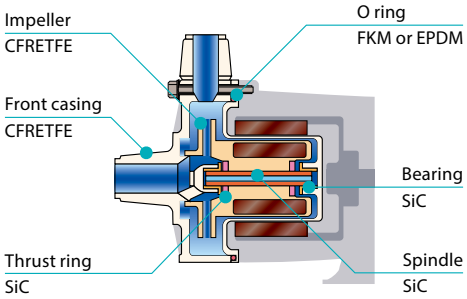
Model	Type of Impeller	Thread connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G.Note1	Output (W)	InputNote2 (W)	Power source		Mass (kg)
								Single phase	Three phase	
MD-55F	X	R1 or G1	65/-	7.8/-	1.5/-	90/-	170/-	100V/200V/ 220V-240V	-	5.4
	Y		60/65	5.4/7.8	2.2/1.5	90/90	130/170			
	Z		-/55	-/6.0	-/2.2	-/90	-/130			
MD-100F	X	R1 or G1	125/-	10.5/-	1.6/-	260/-	375/-		220V/380V/ 400V/440V	8.5
	Y		115/135	8.5/11.5	2.3/1.6	260/260	260/375			
	Z		-/115	-/8.5	-/2.2	-/260	-/285			

- Temperature range: 0 - 80˚C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0 - 40˚C
- Motor type: Capacitor-run induction motor

Note1: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)
Note2: The above values are for single-phase 100V.

Construction and materials

Illustlation shows model MD-100F



- **CFRETFE** Carbon fiber-reinforced ETFE
- **SiC** Silicon carbide ceramic
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - 100F G X
1 2 3

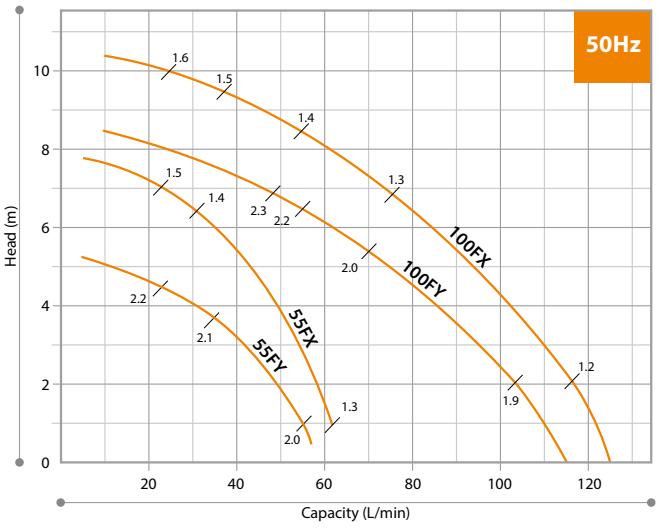
1 Pump size
55F, 100F

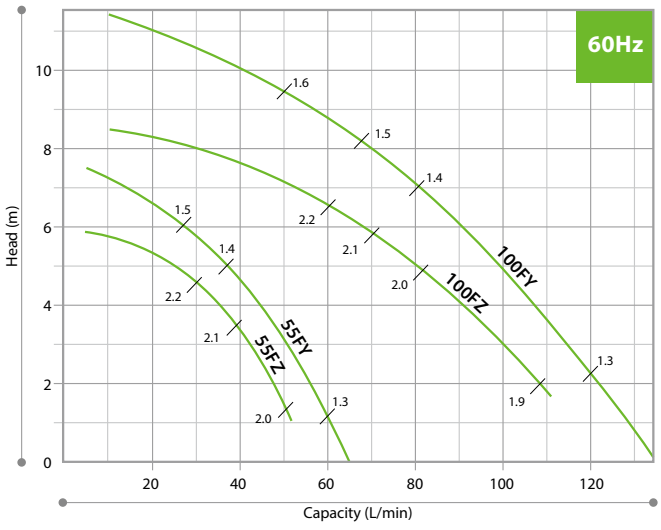
2 Connection
No mark : R thread connection
G : G thread connection

3 Impeller
X : Low S.G. type
Y : Middle S.G. type
Z : High S.G. type (60Hz)

Note: Specify the pump model and power specification at an inquiry phase.

Performance curves





MD-6KV

C F R
PVDF
50/60 Hz

- Max Discharge capacity **8.0/9.0** L/min
- Max Discharge head **1.0/1.4** m

MD-6KV

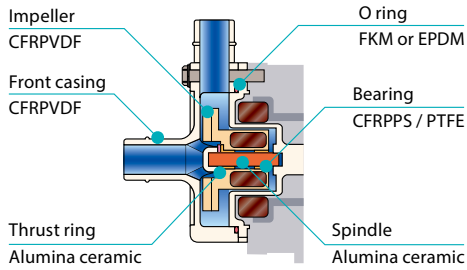
Specifications (50/60Hz)

Model	Hose connection		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	Inlet (mm)	Outlet (mm)							
MD-6KV	Ø14	Ø14	8.0/9.0	1.0/1.4	1.2	5/5	12/12	100V/200V, 220V - 240V, Single phase	0.9

• Temperature range: 0 - 80˚C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0 - 40˚C
• Motor type: Capacitor-run induction motor
Note : Single phase of 200V model is special order. Please contact us for details.

Construction and materials

Illustlation shows model MD-6KV



- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon®," etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

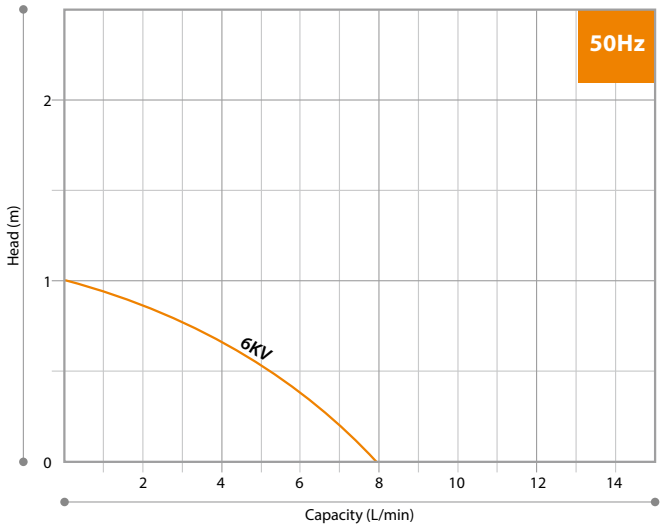
MD - 6K V - E N
1 2 3

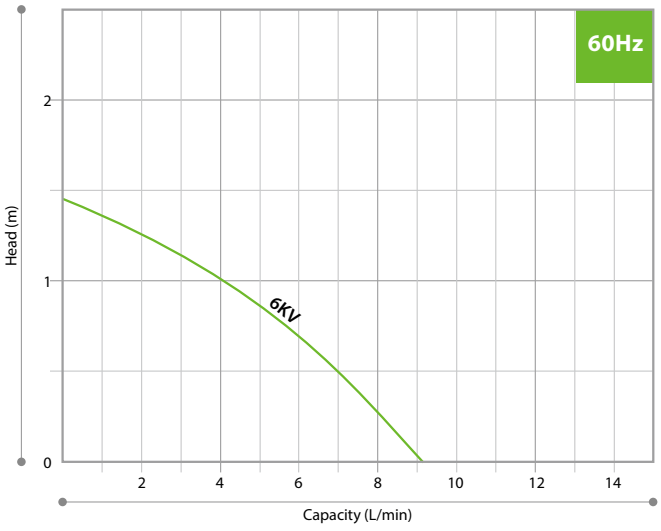
1 Pump size
6K

2 Material of casing
V : CFRPVDF

3 Material of O ring
No mark : FKM (Standard)
E : EPDM (Special order)

Performance curves





MD-15V·20V·30V

C F R
PVDF
50/60 Hz

- Max Discharge capacity **10/11 - 32/38** L/min
- Max Discharge head **2.4/3.4 - 8.0/11** m


MD-15RV


MD-20RZV


MD-30RV

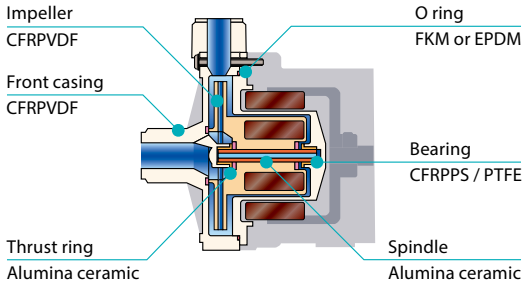
Specifications (50/60Hz)

Model	Hose connection RV · RZV		Thread connection RVM · RZVM		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source Note2	Mass (kg)
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union Note1							
MD-15RV	Ø14	Ø14	—	—	16/19	2.4/3.4	1.3	10/10	26/31	100V/200V 220V - 240V Single phase	1.6
MD-20RZV	Ø17.5	Ø17	G3/4	13A	10/11	4.9/6.9	1.1	20/20	40/50		2.0
MD-30RV	Ø20	Ø20	G3/4	16A	32/38	3.8/5.4	1.3	45/45	60/80		3.5
MD-30RZV	Ø17.5	Ø17	G3/4	13A	15/17	8.0/11	1.0	45/45	70/90		3.5

• Temperature range: 0 - 80˚C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0 - 40˚C
• Motor type: Capacitor-run induction motor
Note 1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0 - 55˚C and that of the heat resistant union is 0 - 80˚C
Note 2: Single phase of 200V model is special order. Please contact us for details.

Construction and materials

Illustlation shows model MD-30RZV



Note: Material of bearing for MD-20RZV and 30RZV are CFRPPS

- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon®," etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - 30 RZ V M - 200 E N
1 2 3 4 5 6

1 Pump size
15, 20, 30

2 Type
R : Standard type
RZ : High head type

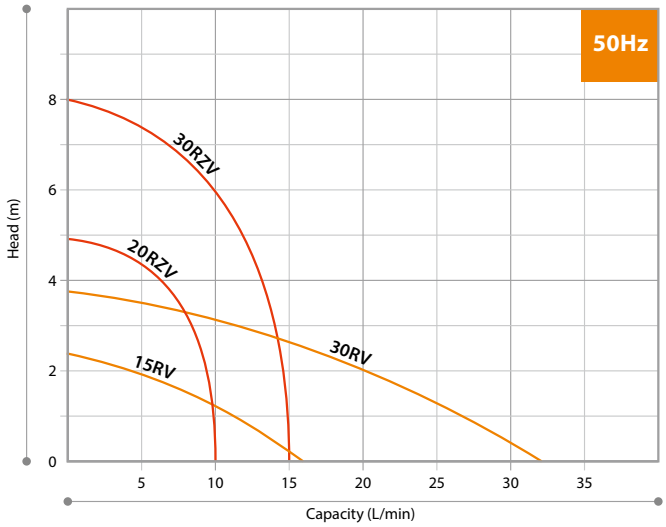
3 Material of casing
V : CFRPVDF

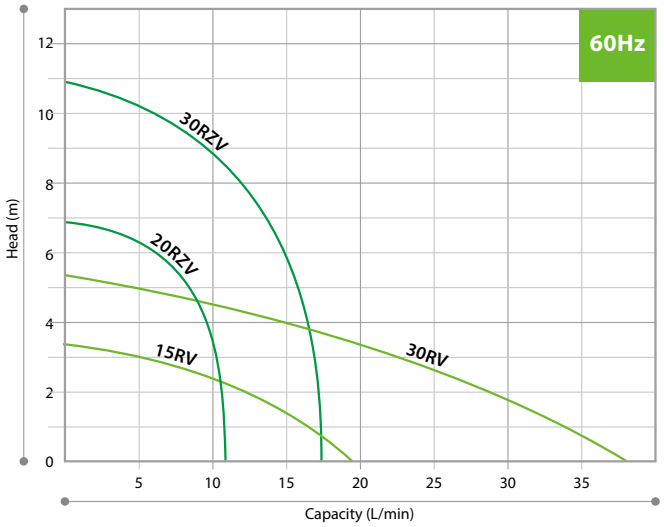
4 Connection
No mark : Hose type
M : G thread connection

5 Motor
No mark : 100V single phase
200 : 200V single phase
220 : 220V - 240V single phase

6 Material of O ring
No mark : FKM (Standard)
E : EPDM (Special order)

Performance curves





MD-70V

C F R
PVDF
50/60 Hz

- Max Discharge capacity **40/43 - 86/97** L/min
- Max Discharge head **6.7/9.7 - 14.3/20.3** m

MD-70RV

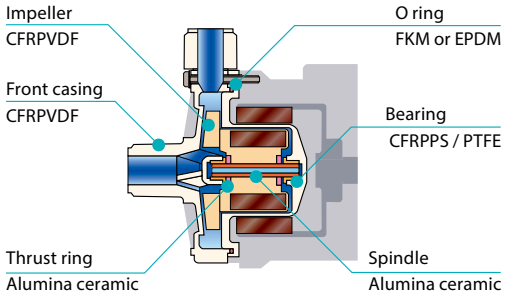
Specification (50/60Hz)

Model	Hose connection RV · RZV		Thread connection RVM · RZVM		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source[Note2]	Mass (kg)
	Inlet(mm)	Outlet(mm)	Inlet/Outlet	Union[Note1]							
MD-70RV	Ø26	Ø26	G1	20A	86/97	6.7/9.7	1.0	150/180	235/365	100V/200V Single phase	6.0
MD-70RZV	Ø20	Ø20	G3/4	16A	40/43	14.3/20.3	1.0	180/216	275/395	220/240V Single phase, 220/380, 400/440V Three phase	6.0

• Temperature range: 0 - 80˚C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0 - 40˚C
• Motor type: Capacitor-run induction motor
Note 1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0 - 55˚C and that of the heat resistant union is 0 - 80˚C
Note 2: Single phase of 200V model is special order. Please contact us for details.

Construction and materials

Illustlation shows model MD-70RV



Note: Material of bearing for MD-70RZV is CFRPPS

- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon®," etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - 70 R V M
1 2 3 4

1 Pump size
70

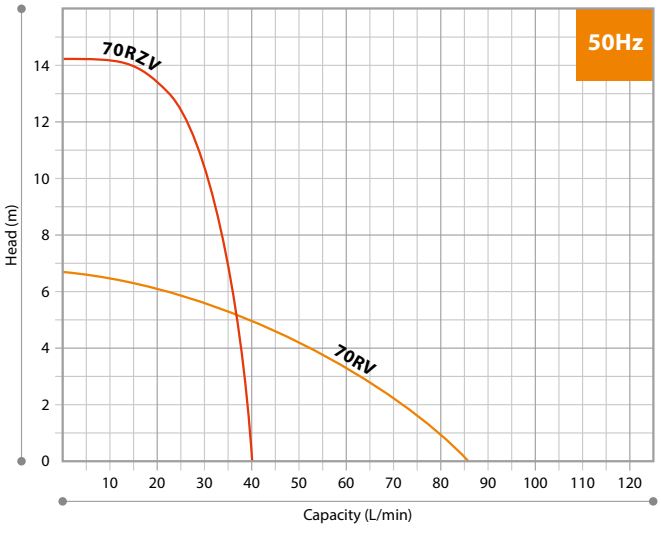
2 Type
R : Standard type
RZ : High head type

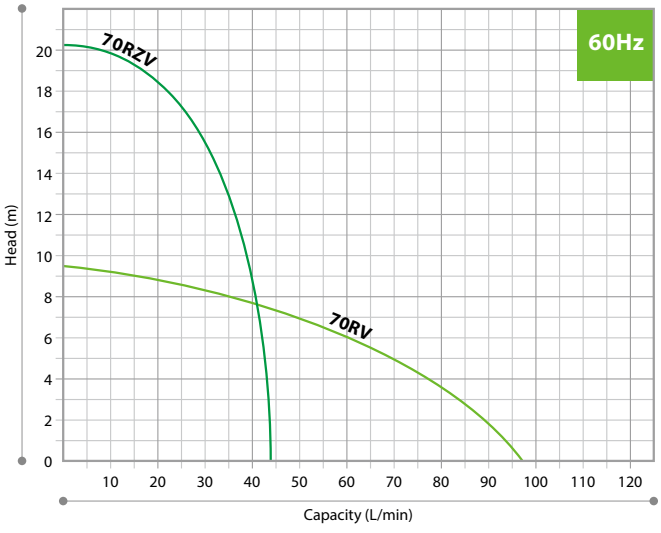
3 Material of casing
V : CFRPVDF

4 Connection
No mark : Hose type
M : G thread connection

Note: Specify the pump model and power specification at an inquiry phase.

Performance curves





Special accessories

- **Union joint**
  Special-purpose union joints are available to cope with three types (13mm, 16mm and 20mm dia.) of piping. Tight sealing O-rings are used to prevent thread damage caused by over-tightening.

Specification

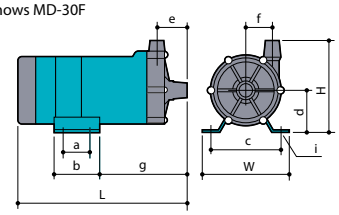
Model	13A	H13A	16A	H16A	20A	H20A
Material	PVC	HT-PVC	PVC	HT-PVC	PVC	HT-PVC
Range of temp.	0 - 55°C	0 - 80°C	0 - 55°C	0 - 80°C	0 - 55°C	0 - 80°C
Material of O ring	FKM or EPDM					

Dimension (mm)

MD-F

MD-15F, 30F

Illustration shows MD-30F

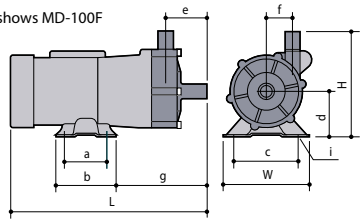


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15F	95	120	186	—	50	68	55	34	29	99	2 - Ø5.6
MD-30F	120	130	231	40	64	100	60	39	39	120	4 - Ø9

Please contact us for G connection type.

MD-55F, 100F

Illustration shows MD-100F

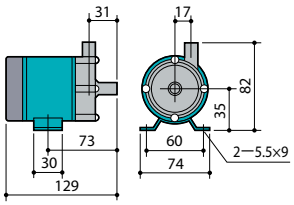


Model	W	H	L	a	b	c	d	e	f	g	i
MD-55F	120	155	270	40	64	100	65	58	40	163	4 - Ø9
MD-100F	156	174	320	70	100	110	75	63	43	145	4 - Ø9×27

Please contact us for G connection type.

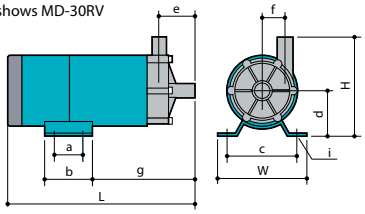
MD-V

MD-6KV



MD-15RV, 30RV, 70RV

Illustration shows MD-30RV

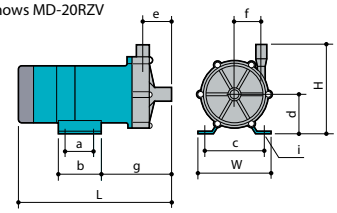


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15RV	95	109 (114)	180 (179)	—	50	68	55	39	22	92	2 - Ø5.6
MD-30RV	120	130	248	40	64	100	60	48	31	137	4 - Ø9
MD-70RV	130	155	258	40	60	110	65	53	43	149	4 - 7×11

( ): Thread connection type

MD-20RZV, 30RZV, 70RZV

Illustration shows MD-20RZV



Model	W	H	L	a	b	c	d	e	f	g	i
MD-20RZV	106	125	211	44	60	90	55	40	39	98	4 - 6×10
MD-30RZV	120	130	230	40	64	100	60			120	4 - Ø9
MD-70RZV	130	165	247	40	60	110	65	42	48	138	4 - 7×11

Precautions for pump selection

- The performance curves shown in this catalog are data for fresh water at 20 ° C. The maximum discharge amount is the discharge amount when the lift is 0 m. The maximum head indicates the total head.
- The magnet pump cannot be operated continuously due. Be sure to plan to secure the minimum flow rate. Minimum pump flow rate = Maximum pump flow rate x 0.1 (Please contact us for details)
- Pump pressure limit = Pump maximum head x 1.5 (Please contact us for details.)
- The temperature range of the handling liquid is 0 to 80 ° C. However, it depends on the conditions such as the heat cycle of the liquid to be handled. (Frozen liquid cannot be used.)

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Thailand	**: IWAKI (Thailand) Co.,Ltd.**	TEL: (66)2 322 2471	FAX: 2 322 2477

Caution for safety use:
Before use of pump, read instruction manual carefully to use the product correctly.

Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.

Legal attention related to export.

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